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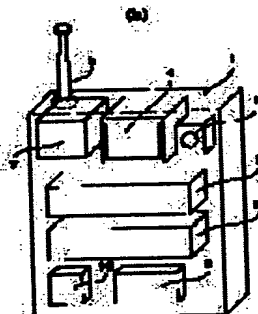
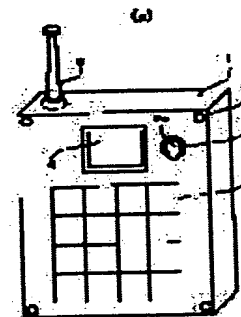
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## (54) MONITOR CAMERA TRANSMITTER

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a monitor camera transmitter for transmitting a video captured by a camera by radio by using a power source having a solar cell and a secondary cell in combination.

**SOLUTION:** Any or both of the solar cell, the secondary cell, the camera, a radio equipment and a calling button or a sensitive sensor are integrally constituted in a planar state so as to have a structure to be simply mounted in an outdoor exit/entrance. Thus, the video captured by the camera is automatically transmitted by radio by pressing the button by a visitor or by operating the sensor.



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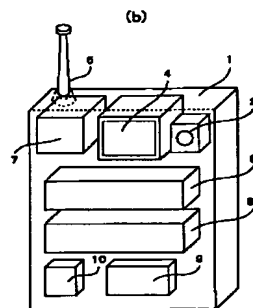
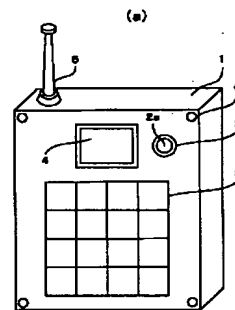
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(54) 【発明の名称】 監視カメラ伝送装置

(57) 【要約】

【課題】 太陽電池と二次電池を組み合わせた電源を用いて、カメラで捕らえた映像を無線で伝送する監視カメラ伝送装置を提供する。

【解決手段】 屋外の出入口に簡単に取り付けられる構造を有するように、太陽電池と、二次電池と、カメラと、無線機と、呼出しボタン又は感知センサのいずれか、或いは両方とを一体で平面的に構成し、来客者が前記呼出しボタンを押すか、又は前記感知センサが作動することにより、前記カメラで捕らえた映像を自動的に無線で伝送することを特徴とする。



## 【特許請求の範囲】

【請求項1】 屋外の出入口に簡単に取り付けられる構造を有するように、太陽電池と、二次電池と、カメラと、無線機と、呼出しボタン又は感知センサのいずれか、或いは両方とを一体で平面的に構成し、来客者が前記呼出しボタンを押すか、又は前記感知センサが作動することにより、前記カメラで捕らえた映像を自動的に無線で伝送することを特徴とする監視カメラ伝送装置。

【請求項2】 屋外の出入口に簡単に取り付けられる構造を有するように、太陽電池と、二次電池と、カメラと、無線機と、マイクロホンと、呼出しボタン又は感知センサのいずれか、或いは両方とを一体で平面的に構成し、来客者が前記呼出しボタンを押すか、又は前記感知センサが作動することにより、前記カメラの映像と、前記マイクロホンの音声とを自動的に無線で伝送することを特徴とする監視カメラ伝送装置。

【請求項3】 前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、前記感知センサが作動するか、または呼出しボタンにより電源がオンとなり、前記受信機で受信信号が検知されたとき、チャイムを鳴らし報せることを特徴とする請求項1又は請求項2に記載の監視カメラ伝送装置。

【請求項4】 前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、この受信機で受信した電波と、アンテナ端子から送られてくる他の電波とを合わせ、TV受信機に伝送することにより、一般の家庭用TV受信機で受像できることを特徴とする請求項1～3のいずれかに記載の監視カメラ伝送装置。

【請求項5】 前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、この受信機で受信した信号から映像信号信号を取り出し、TV受信機のビデオ信号端子より映像を取り入れ受像できることを特徴とする請求項1～4のいずれかに記載の監視カメラ伝送装置。

【請求項6】 前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、この受信機で受信信号が検知されたとき、TV受信機の電源を自動的に入れ、映像を映し出すことができるようにすることを特徴とする請求項1～5のいずれかに記載の監視カメラ伝送装置。

【請求項7】 前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、この受信機で受信した受信映像を録画し、後に録画映像を映し出すことができるようにすることを特徴とする請求項1～6のいずれかに記載の監視カメラ伝送装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、太陽電池と二次電池電源とにより無配線を可能にし、CCDまたはCMOS小型カメラによる捕らえた映像を、無線で伝送する監

視カメラ伝送装置に関する。

## 【0002】

【従来の技術】従来、ドアカメラ、インターホン等の技術があるが、有線を主体としているので配線が面倒であり、後付けが難しい。無配線をする電力の供給が難しくなる。そのため電池を使う方法もあるが電池を頻繁に変えないければならないので、メンテナンスが煩わしく使用に耐えない。

## 【0003】

【発明が解決しようとする課題】以上のような問題を解決するために本発明では、素人でも簡単に取り付けられるようにし、また、家に穴をあけたり、線をはわしたり、ステップル等で留めたりしないようにするために、太陽電池と二次電池を組み合わせた電源を用いて、カメラで捕らえた映像を無線で伝送する監視カメラ伝送装置を提供することを目的とする。

## 【0004】

【課題を解決するための手段】上記目的を達成するため、請求項1に記載の発明は、屋外の出入口に簡単に取り付けられる構造を有するように、太陽電池と、二次電池と、カメラと、無線機と、呼出しボタン又は感知センサのいずれか、或いは両方とを一体で平面的に構成し、来客者が前記呼出しボタンを押すか、又は前記感知センサが作動することにより、前記カメラで捕らえた映像を自動的に無線で伝送することを特徴とする。

【0005】請求項2に記載の発明では、請求項1に加えてマイクロホン有し、来客者が前記呼出しボタンを押すか、又は前記感知センサが作動することにより、前記カメラの映像と、前記マイクロホンの音声とを自動的に無線で伝送することを特徴とする。

【0006】請求項3に記載の発明は、前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、前記感知センサが作動するか、または呼出しボタンにより電源がオンとなり、前記受信機で受信信号が検知されたとき、チャイムを鳴らし報せることを特徴とする。

【0007】請求項4に記載の発明は、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した電波と、アンテナ端子から送られてくる他の電波とを合わせ、TV受信機に伝送することにより、一般の家庭用TV受信機で受像できることを特徴とする。

【0008】請求項5に記載の発明は、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した信号から映像信号信号を取り出し、TV受信機のビデオ信号端子より映像を取り入れ受像できることを特徴とする。

【0009】請求項6に記載の発明は、前記カメラの映像を屋内の受信機で受信して、この受信機で受信信号が検知されたとき、TV受信機の電源を自動的に入れ、映像を映し出すことができるようにすることを特徴とす

る。

【0010】請求項7に記載の発明は、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した受信映像を録画し、後に録画映像を映し出すことができるようにすることを特徴とする。

【0011】

【発明の実施の形態】次に、本発明にかかる監視カメラ伝送装置の、実施の形態の具体例を、図面を参照しながら説明する。

【0012】図1は本実施の形態における監視カメラ伝送装置の送信機を示す概略図であり、図1(a)は送信機の外観を示し、図1(b)は送信機の内部を示している。

【0013】図1の送信機1にカメラ2のレンズが覗く覗き穴2aが設けられている。送信機1の外面には太陽電池3が配置され、この太陽電池3によって太陽光による発電が行われ、この電流は図1(b)に示す電気二重層コンデンサ9と電源制御回路10を介してリチウムイオン電池、プロトンポリマー電池などによる二次電池8、8aに充電を行う。したがって本体の大部分は電源装置で占められる。二次電池8、8aの電圧、電流、電力容量が1つで充分の場合には、図のように2個用いる必要がないが、これで足りない場合は更に増やさなければならない。

【0014】一般にCCDカメラに必要な電圧は6V～12V、電流は100mA～150mA程度であるので、太陽光により十分に発電、充電を行うことができる。CCDカメラの代わりにCMOSカメラを用いる場合はもっと低い電流値で動作できるのでCMOSカメラが低価格、高性能となればCMOSカメラの方が良い。

【0015】CCDカメラ又はCMOSカメラで受像した映像をNTSC又はPAL方式などでUHFの送信部7(13ch～27ch、BSチューナ1.2～1.3GHz等の周波数)より発信し、アンテナ5を介して送信を行う。従来のTV受信機(以降TVと称す)の受信範囲である周波数帯であると簡単に受信できるので、この範囲の妨害とならない周波数を用い、特に他に障害とならない微小電力で動作させることが望ましい。

【0016】その他省電力の無線通信規格として知られるBluetoothや、無線LANの2.4GHz等の周波数を用いても良い。業務用に用いる場合は専用の周波数を用いることもできるし、映像デジタル信号を伝送しても良い。

【0017】送信機1は玄関先や屋外の日の当たる明るい場所に設置される場合が多く、太陽電池3と二次電池8と電気二重層コンデンサコンデンサ9、或いはプロトンポリマー電池などを用いることにより効率よい電源を構成し、電力線の配線を行わないでカメラやマイクロホンへの電源の給電を行い、また、映像や音声を無線で伝送するための無線器への電力供給や、人体感知センサ等

への電力供給も行うことができる。

【0018】なお、送信機1には必要に応じてモニタ部4を設け、カメラ2で写した映像を表示しても良いし、また受信装置を設けて屋内の映像を映し出すようにしても良い。6は止めビスを表している。

【0019】図2は、送信機1に呼出しボタン20を設け、このボタン20を押すことによりスイッチが入り、映像の送信を行うようにすることができるようにしたものである。またこのときチャイムを同時に鳴らせるようにしても良い。

【0020】インターホンの機能を持たせる場合にはスリット22を介して音が伝わりマイクロホンで音声を受信される。屋内からの音声を伝える場合には、送信機1側にも受信装置やスピーカが必要となる。

【0021】なお、図1及び図2に示す送信機1に備え付けられる太陽電池3のパネル(セル)部分は、一体に構成せずに、場合によっては適宜、送信機1本体部分から切り離し、より太陽の光量が得られる向きに設置することも可能である。

【0022】図3は、図1または図2に示した屋外に取り付けられた送信機1のアンテナ5から放射された映像信号を受信するため、TVの上或いは脇におかれた受信機11を示し、アンテナ15によって受信される。受信された映像信号はそのままか、或いは高周波増幅器(アンプ)を介して増幅され、通常のTVに送られ受像される。

【0023】屋内の受信機11に信号が入った際に、受信機11に取り付けられたチャイム18を鳴らしても良いし、屋外に取り付けられたチャイムを鳴らしても良い。チャイムが聞こえたところで、リモコンでTVのスイッチを入れ予め決められたチャネルを選ぶことで屋外の映像を通常のTVで受信することができる。

【0024】自動的に映像を映し出す場合は、予めセットしたチャネルにTVをセットしておき、受信機11に信号が入力された時に受信機11の中のスイッチを動かしてTVの電源をONにすれば、TVの電源をリモコンで操作しなくてもスイッチは自動的にONとなる。検波後の映像信号を用いてもTVを映像側に切り換えておけば同じ条件で映像を見ることができる。

【0025】図3の受信機11についてさらに説明すると、電源スイッチ14により受信機電源のオンオフを行う。受信機11が動作している場合、例えば赤のLED16が点灯する。映像信号が受信された場合に、例えば緑のLED17が点灯し、チャイム18を鳴らすことができる。もし手動で切り換えを行う場合には、チャイム18がなった時にボタン式スイッチ(図示せず)で切り換えるようにしてもよい。

【0026】図4は、受信機11の内部の主要な構成を示すもので、アンテナ15で受信された高周波信号は受信部12で受信され、増幅後或いはそのまま検波され

る。高周波信号をそのまま伝送する場合には、カップラ、ミキサ或いはスイッチ部で構成された結合器13の部分に信号が入り、この結合器13を介してTVに出力される。

【0027】高周波信号をTVに送る場合にはアンテナ15から入って来る信号と切り換えを行うか、或いはミキシングを行わなければならないので結合器13で適切な処理を受ける。TVの電源を切らない状態で、この受信機11を機能させる場合にはTVのリモコンに対応する電源のオン、オフ信号などを受信できるようにして、スイッチで切り換える(図示せず)必要がある。なお、受信機11を動作させるために電源部19により電圧の変換とDC電流を得る。

【0028】図5は、屋外に設置される送信機1の回路構成例を示したもので、太陽電池3により受光された太陽光は電圧電流として変換され、逆流防止ダイオード23及び電源制御回路10を介して電気二重層コンデンサ9及び二次電池8に充電される。

【0029】人体が近づいた際、熱線または赤外線感知器(センサ)24などによりスイッチSW1を作動させ直流電源の供給をCCDカメラ(CMOSカメラ)2(C)と送信部7(T)に行ない、映像信号Sgを送信部7(T)及びアンテナ5を介して送信する。手動でスイッチSW1を入れてチャイム28を鳴らすこともできる。

【0030】図6は、受信機11の回路構成例を示すもので、受信アンテナ15により受信された信号は12aで選択受信され、高周波増幅器(RF Amp)12bを通過して増幅される。信号が受信されたことを検知することによって図3及び図4に示したチャイム18をONとし鳴らすことができ、来客を告げる。受信されたRF信号はTVアンテナから入って来るTV信号と結合器13aを介して合成され、TVのアンテナ端子に接続される。

【0031】結合器13aによる結合の方法はアンテナ15から来る信号の強さやCCDカメラによる映像の強さによりアンテナ15側からきた線を直結にするか(b)、或いは映像信号が入ったときだけ映像信号が伝送されて来る線に切り換える(c)方式をとるか、いずれでも構築できる。

【0032】高周波を扱うケーブルの場合には、TVにおいてはF型接栓が一般的なのでF型の端子を用いる。また直流をカットしたい場合にはコンデンサでカットして高周波を通過させ、直流をカットさせることができる。交流電源はトランスによって切り離すことができ、周波数の違いを利用してコンデンサで切ることもできる。

【0033】なお、図示していないが、電源部において交流から直流電源を得て、受信機11に供給される。この電源部分はACアダプタを用いても良い。

【0034】図7には映像信号をビデオ信号に変換して伝送する場合を示す。高周波増幅器12bまでは同じであるが、この高周波を検波器25で検波してベースバンドをビデオ信号にして切換器、或いはスイッチ13cによりVTRより来る線と切り換えを行って、TVのビデオ端子に映像を伝送することができる。

【0035】25aはビデオ信号の伝送路で、25bはアンプよりの出力を検知し、スイッチ13を動作させるための信号線である。

【0036】図8はインターホンのように音声を伝送する場合を示し、CCDカメラ装置によっては音声をNTSC方式で同時に伝送できるものもあるので、その場合にはそのままNTSC信号に音声を載せて伝送することもできる。

【0037】電源部は図5とほぼ同じであるが人体感知センサ24によってスイッチSW1を入れチャイム28を鳴らし電源をオンにし、マイクロホン(A)26により音声を受け、カメラ(C)2により映像を映し出し、これらの信号を送信機(T)7によって屋内に送信する。

【0038】図8(b)は映像信号と音声信号を別々に送信する場合を示す。

【0039】図9は、受信されたビデオ信号をメモリ27に記録する機能を有し、後に再生することができるようにしたものである。このような記録は、受信側で行わないでCCDカメラに内蔵するDSP(digital signal processor)によってデジタル信号を記録し、静止画として保存し、後に送信することもできる。

【0040】これにより、不在の間にどのような訪問客があったかも帰宅後にチェックできる。TVのほかにVTRに画像を送るようにしておけばVTRに記録することもできる。

【0041】なお、送受信アンテナとして、信号が弱くて十分な受信信号が得られないような場合には、2~3素子程度の八木アンテナを用いて送受信機双方の方向に指向性を向ける方法を用いても良い。

【0042】

【発明の効果】以上に説明したように、請求項1、2に記載の発明によれば、屋外の出入口に簡単に取り付けられる構造を有するように、太陽電池と、二次電池と、カメラと、マイクロホンと、無線機と、呼出しボタン又は感知センサのいずれか、或いは両方とを一体で平面的に構成し、来客者が前記呼出しボタンを押すか、又は感知センサが作動することにより、カメラで捕らえた映像と、マイクロホンの音声とを自動的に無線で伝送し、電力線の配線を行わないでカメラやマイクロホンへの電源の給電と、映像や音声を無線で伝送するための無線器への電力供給と、人体感知センサ等への電力供給とを行うことができる。また、無線機を一体として内蔵する場合には、ビデオ信号を伝送するケーブルも不要となるの

で、本体が独立して取り付けることができ、配線の手間も省け、素人でも簡単に取り付けられる効果がある。

【0043】請求項3に記載の発明によれば、前記カメラの映像を高周波搬送波に乗せて無線で伝送し、屋内の受信機で受信して、前記感知センサが作動するか、または呼出しボタンにより電源がオンとなり、前記受信機で受信信号が検知されたとき、チャイムを鳴らし報せることで、屋内にいて訪問者があったことを知ることができる。

【0044】請求項4に記載の発明によれば、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した電波と、アンテナ端子から送られてくる他の電波とを合わせ、TV受信機に伝送することにより、一般の家庭用TV受信機で受像でき、専用の受像機を必要としない。

【0045】請求項5に記載の発明によれば、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した信号から映像信号信号を取り出し、TV受信機のビデオ信号端子より映像を取り入れ受像でき、必要に応じてビデオレコーダなどを用いて屋外の様子を記録することができる。

【0046】請求項6に記載の発明によれば、前記カメラの映像を屋内の受信機で受信して、この受信機で受信信号が検知されたとき、TV受信機の電源を自動的に入れ、映像を映し出すことができるようにすることで、訪問者があったことを映像で知ることが可能になる。

【0047】請求項7に記載の発明によれば、前記カメラの映像を屋内の受信機で受信して、この受信機で受信した受信映像を録画し、後に録画映像を映し出すことができるようにすることで、過去に遡って訪問者を知ることが可能になる。

【図面の簡単な説明】

【図1】本発明の実施の形態における監視カメラ伝送装置の送信機の構成を示す概略図である。

【図2】図1における監視カメラ伝送装置の送信機に呼出しボタンを付けインターホン機能を持たせた構成を示す概略図である。

【図3】本発明の実施の形態における監視カメラ伝送装

置の受信機の構成を示す概略図である。

【図4】図3における監視カメラ伝送装置の受信機の内

部構成を示す概略図である。

【図5】本発明の実施の形態における監視カメラ伝送装置の送信機の回路構成例を示す概略図である。

【図6】本発明の実施の形態における監視カメラ伝送装置の受信機の回路構成例を示す概略図である。

【図7】図6における監視カメラ伝送装置の受信機の映像信号をビデオ信号に変換して伝送する回路構成例を示す概略図である。

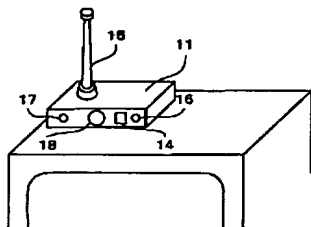
【図8】図5における監視カメラ伝送装置の送信機の音声を送信する回路構成例を示す概略図である。

【図9】図7における監視カメラ伝送装置の受信機のビデオ信号をメモリに記録する回路構成例を示す概略図である。

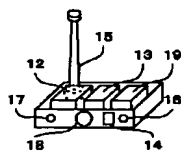
【符号の説明】

- |        |             |
|--------|-------------|
| 1      | 送信機         |
| 2      | カメラ         |
| 3      | 太陽電池        |
| 5      | アンテナ        |
| 7      | 送信部         |
| 8      | 二次電池        |
| 9      | 電気二重層コンデンサ  |
| 10     | 電源制御回路      |
| 11     | 受信機         |
| 12     | 受信部         |
| 13、13a | 結合器         |
| 13c    | スイッチ        |
| 14     | 電源スイッチ      |
| 15     | アンテナ        |
| 18     | チャイム        |
| 19     | 電源部         |
| 23     | 逆流防止ダイオード   |
| 24     | 赤外線感知器（センサ） |
| 25     | 検波器         |
| 26     | マイク         |
| 27     | メモリ         |
| 28     | チャイム        |

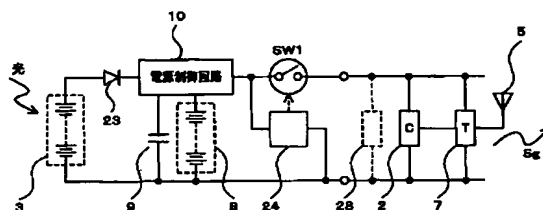
【図3】



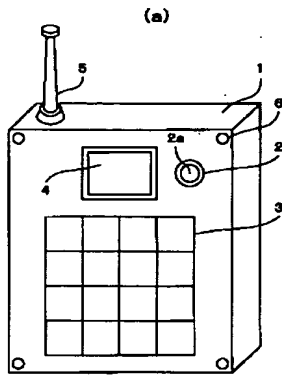
【図4】



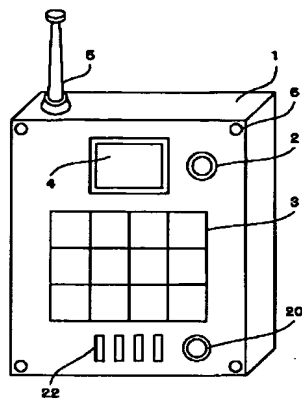
【図5】



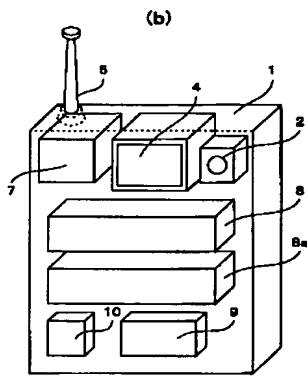
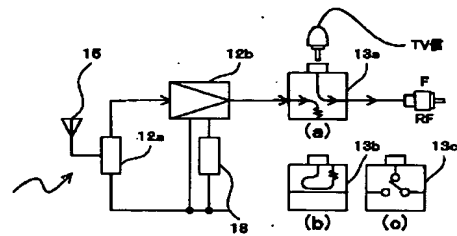
【圖1】



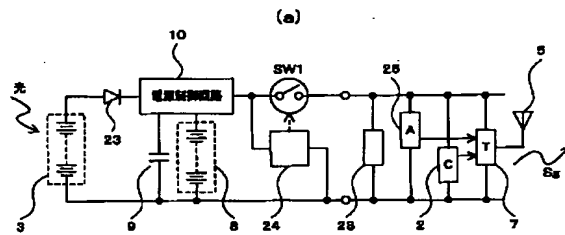
【圖2】



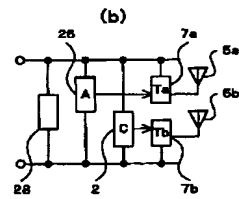
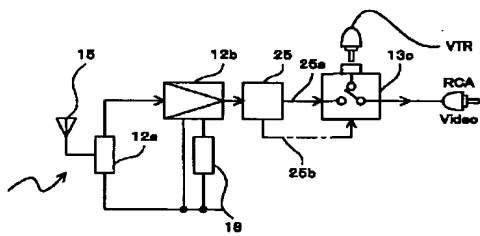
【圖6】



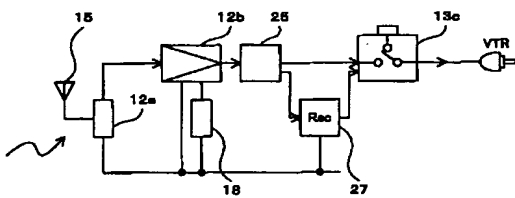
【圖8】



【圖7】



【圖9】



JAPANESE

[JP,2002-077893,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL  
PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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**CLAIMS**

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[Claim(s)]

[Claim 1] Surveillance camera transmission equipment characterized by transmitting automatically on radio the image caught with the aforementioned camera when a solar battery, a rechargeable battery, a camera, a walkie-talkie, and either a call button or a sensing sensor and both were superficially constituted from one, and a visitor person pushed the aforementioned call button or the aforementioned sensing sensor operated so that it may have the structure simply attached in an outdoor entrance.

[Claim 2] Surveillance camera transmission equipment characterized by transmitting the image of the aforementioned camera, and the voice of the aforementioned microphone on radio automatically when a solar battery, a rechargeable battery, a camera, a walkie-talkie, a microphone, and either a call button or a sensing sensor and both are superficially constituted from one, and a visitor person pushes the aforementioned call button or the aforementioned sensing sensor operates so that it may have the structure simply attached in an outdoor entrance.

[Claim 3] Surveillance camera transmission equipment according to claim 1 or 2 characterized by what a chime is sounded and is told when put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, and the indoor receiver received, the aforementioned sensing sensor operates, or a power supply is turned on with a call button and an input signal is detected with the aforementioned receiver.

[Claim 4] Surveillance camera transmission equipment according to claim 1 to 3 characterized by the ability to receive a picture with common home TV receiver by putting the image of the aforementioned camera on a RF subcarrier, transmitting on radio, doubling the electric wave which received with the indoor receiver and was received with this receiver, and other electric waves sent from an antenna terminal, and transmitting to TV receiver.

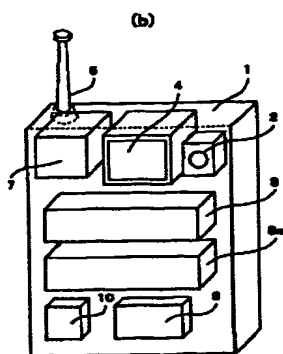
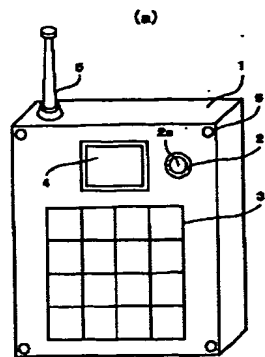
[Claim 5] Surveillance camera transmission equipment according to claim 1 to 4 characterized by taking out a video-signal signal from the signal which put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, received with the indoor receiver, and was received with this receiver, taking in an image and being able to receive a picture from the video signal terminal of TV receiver.

[Claim 6] Surveillance camera transmission equipment according to claim 1 to 5 characterized by turning on TV receiver automatically and enabling it to project an image when put the image of the aforementioned camera on a RF subcarrier, it transmits on radio, an indoor receiver receives and an input signal is detected with this receiver.

[Claim 7] Surveillance camera transmission equipment according to claim 1 to 6 characterized by recording on videotape the receiving image which put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, received with the indoor receiver, and received with this receiver, and enabling it to project a videotape-recording image behind.

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[Translation done.]



[Translation done.]

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention makes it possible not to wire by the solar battery and the rechargeable battery power supply, and relates to the surveillance camera transmission equipment which transmits the caught image with CCD or a CMOS small camera on radio.

[0002]

[Description of the Prior Art] Although there is technology of a door camera, an interphone, etc. conventionally, since the cable is made into the subject, wiring is troublesome, and post-installation is difficult. Supply of power will become difficult if it carries out no wiring. Therefore, since it will not become if a cell is not changed frequently and kicked, although there is also a method using a cell, a maintenance does not bear use troublesomely.

[0003]

[Problem(s) to be Solved by the Invention] In order to also attach an amateur simply in this invention in order to solve the above problems, and to make a hole in a house, to make it crawl on a line or not to stop by the staple etc., it aims at offering the surveillance camera transmission equipment which transmits on radio the image caught with the camera using the power supply which combined the solar battery and the rechargeable battery

[0004]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention according to claim 1 So that it may have the structure simply attached in an outdoor entrance A solar battery, When a rechargeable battery, a camera, a walkie-talkie, and either a call button or a sensing sensor and both are superficially constituted from one, and a visitor person pushes the aforementioned call button or the aforementioned sensing sensor operates It is characterized by transmitting automatically the image caught with the aforementioned camera on radio.

[0005] In invention according to claim 2, when it has a microphone in addition to a claim 1, and a visitor person pushes the aforementioned call button or the aforementioned sensing sensor operates, it is characterized by transmitting the image of the aforementioned camera, and the voice of the aforementioned microphone on radio automatically.

[0006] Invention according to claim 3 is characterized by what a chime is sounded and is told, when put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, and the indoor receiver received, the aforementioned sensing sensor operates, or a power supply is turned on with a call button and an input signal is detected with the aforementioned receiver.

[0007] Invention according to claim 4 is characterized by the ability to receive a picture with common home TV receiver by doubling the electric wave which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and other electric waves sent from an antenna terminal, and transmitting to TV receiver.

[0008] Invention according to claim 5 takes out a video-signal signal from the signal which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and is characterized by taking in an image and being able to receive a picture from the video signal terminal of TV receiver.

[0009] When an indoor receiver receives the image of the aforementioned camera and an input signal is detected with this receiver, invention according to claim 6 turns on TV receiver automatically, and is characterized by enabling it to project an image.

[0010] Invention according to claim 7 records on videotape the receiving image which received the image of the aforementioned camera with the indoor receiver, and received with this receiver, and is characterized by enabling it to project a videotape-recording image behind.

[0011]

[Embodiments of the Invention] Next, the example of the gestalt of operation of the surveillance camera transmission equipment concerning this invention is explained, referring to a drawing.

[0012] Drawing 1 is the schematic diagram showing the transmitter of the surveillance camera transmission

equipment in the gestalt of this operation, drawing 1 (a) shows the appearance of a transmitter and drawing 1 (b) shows the interior of a transmitter.

[0013] Inspection hole 2a which the lens of a camera 2 peeps into to the transmitter 1 of drawing 1 is prepared. A solar battery 3 is arranged at the superficies of a transmitter 1, power generation by sunlight is performed by this solar battery 3, and this current charges at the rechargeable batteries 8 and 8a by the lithium ion battery, the proton polymer battery, etc. through the electric double layer capacitor 9 and the power control circuit 10 which are shown in drawing 1 (b). Therefore, most main parts are occupied by the power unit. Although it is not necessary to use two pieces as shown in drawing when one is enough as the voltage of rechargeable batteries 8 and 8a, current, and power capacity, when insufficient now, you have to increase further.

[0014] Generally, since voltage required for a CCD camera is 100mA – about 150mA, 6V–12V, and current can fully perform power generation and charge by sunlight. The CMOS camera is better, if a CMOS camera serves a low price and high performance, since it can operate by low current value more when using a CMOS camera instead of a CCD camera.

[0015] The image which received a picture with the CCD camera or the CMOS camera is sent by NTSC or the PAL system from the transmitting section 7 (frequency of 13ch – 27ch, 1.2–1.3GHz of broadcasting satellite tuners etc., etc.) of UHF, and it transmits through an antenna 5. Since it is easily receivable with it being the frequency band which is the receiving range of the conventional TV receiver (TV is called henceforth), it is desirable to make it operate with the minute power acting as [ especially others ] an obstacle using the frequency used as disturbance of this range.

[0016] In addition, you may use frequency of Bluetooth known as radio specification of power saving, and wireless LAN, such as 2.4 etc.GHz. When using for business use, the frequency of exclusive use can also be used, and you may transmit an image digital signal.

[0017] The electric power supply to the radio machine for being installed in the bright place where the day of a space outside the front door or the outdoors hits in many cases, supplying electric power in the power supply to a camera or a microphone without constituting an efficient power supply and wiring the power line by using a solar battery 3, a rechargeable battery 8, the electric-double-layer-capacitor capacitor 9, or a proton polymer battery, and transmitting an image and voice on radio, and the electric power supply to a human body sensing sensor etc. can also perform a transmitter 1.

[0018] In addition, the monitor section 4 is formed in a transmitter 1 if needed, the image copied with the camera 2 may be displayed, and a receiving set is formed, and you may make it project an indoor image. 6 expresses the stop screw.

[0019] Drawing 2 is called to a transmitter 1, forms a button 20, and a switch is turned on and it enables it to transmit an image by pushing this button 20. Moreover, you may enable it to sound a chime simultaneously at this time.

[0020] When giving the function of an interphone, sound is transmitted through a slit 22 and voice is received by the microphone. In telling the voice from indoor, a receiving set and a loudspeaker are needed also for a transmitter 1 side.

[0021] In addition, it is also possible to install in the sense from which the panel (cell) portion of the solar battery 3 with which the transmitter 1 shown in drawing 1 and drawing 2 is equipped is suitably separated from part for an one transmitter soma, without constituting in one, and the solar quantity of light is obtained more depending on the case.

[0022] In order that drawing 3 may receive the video signal emitted from the antenna 5 of the transmitter 1 attached in the outdoors shown in drawing 1 or drawing 2, it shows the receiver 11 set by TV top or its side, and is received by the antenna 15. The received video signal remains as it is, or is amplified through the high-frequency amplifier (amplifier), and is sent and televised by the usual TV.

[0023] When a signal goes into the indoor receiver 11, the chime 18 attached in the receiver 11 may be sounded and the chime attached in the outdoors may be sounded. An outdoor image is receivable with the usual TV by choosing the channel which switched on TV and was beforehand decided by remote control in the place where the chime was able to be heard.

[0024] When projecting an image automatically, TV is set to the channel set beforehand, and if the switch in a receiver 11 is moved and the power supply of TV is turned ON, when a signal is inputted into a receiver 11, even if it will not operate the power supply of TV by remote control, a switch is switched on automatically. If TV is switched to the image side even if it uses the video signal after detection, an image can be seen on the same conditions.

[0025] If the receiver 11 of drawing 3 is explained further, a receiver power supply will be turned on and off by the electric power switch 14. When the receiver 11 is operating, red Light Emitting Diode 16 lights. When a video signal is received, green Light Emitting Diode 17 can light and a chime 18 can be sounded. When a chime 18 rings you may make it switch with a button formula switch (not shown), when switching manually.

[0026] drawing 4 shows the main composition inside a receiver 11, and the RF signal received with the antenna.

15 is received by the receive section 12 — having — after amplification — or it is detected as it is. When transmitting a RF signal as it is, a signal goes into the portion of the coupler 13 which consisted of a coupler, a mixer, or the switch section, and it is outputted to TV through this coupler 13.

[0027] Since it must switch with the signal which enters from an antenna 15 or must mix when sending a RF signal to TV, suitable processing is received by the coupler 13. When operating this receiver 11, as ON of the power supply corresponding to remote control of TV, an OFF signal, etc. can be received in the state where TV is not turned off, there is the need of switching by the switcher (not shown). In addition, in order to operate a receiver 11, conversion and DC current of voltage are acquired by the power supply section 19.

[0028] Drawing 5 is what showed the example of circuitry of the transmitter 1 installed in the outdoors, and the sunlight received by the solar battery 3 is changed as voltage current, and is charged by an electric double layer capacitor 9 and the rechargeable battery 8 through the antisuckback diode 23 and the power control circuit 10.

[0029] When a human body approaches, a switch SW1 is operated with a heat ray or the infrared sensor (sensor 24, DC power supply are supplied to CCD camera (CMOS camera) (C) 2 and the transmitting section 7 (T), and video signal Sg is transmitted through the transmitting section 7 (T) and an antenna 5. A switch SW1 can be turned on manually and a chime 28 can also be sounded.

[0030] Drawing 6 shows the example of circuitry of a receiver 11, selection reception is carried out by 12a, and the signal received by the receiving antenna 15 is amplified through high-frequency-amplifier (RFamp) 12b. The chime 18 which showed that the signal was received to drawing 3 and drawing 4 by detecting can be set to ON, and can be sounded, and a visitor is told. Received RF signal is compounded through TV signal and coupler 13a which enter from TV antenna, and is connected to the antenna terminal of TV.

[0031] Only when the line by which it came from the antenna 15 side by the strength of the image by the signal intensity and the CCD camera which come from an antenna 15 is made direct connection or (b) or a video signal enters, the method of combination by coupler 13a takes the (c) method switched to the line by which a video signal is transmitted, or can build either.

[0032] In the case of the cable treating a RF, since the female mold plug is common in TV, the terminal of a female mold is used. Moreover, it cuts by the capacitor, and a RF can be passed and a direct current can be made to omit to omit a direct current. AC power supply can be separated by the transformer and can also be cut by the capacitor using the difference in frequency.

[0033] In addition, although not illustrated, in a power supply section, DC power supply are obtained from an alternating current, and a receiver 11 is supplied. The amount of this power supply section may use an AC adapter.

[0034] The case where a video signal is changed and transmitted to a video signal is shown in drawing 7. Although high-frequency-amplifier 12b is the same, it can switch with the line by which this RF is detected with a wave detector 25, baseband is made into a video signal, and it comes from VTR by change machine or switch 13c, and an image can be transmitted to the video terminal of TV.

[0035] 25a is the transmission line of a video signal, and 25b is a signal line for detecting the output from amplifier and operating a switch 13.

[0036] Since drawing 8 has some which show the case where voice is transmitted like an interphone and can transmit voice simultaneously by the NTSC color TV system depending on CCD camera equipment, in that case voice can also be carried and transmitted to an NTSC signal as it is.

[0037] Although the power supply section is almost the same as drawing 5, it turns on a switch SW1 by the human body sensing sensor 24, sounds a chime 28, turns ON a power supply, it receives voice with a microphone (A) 26, projects an image with a camera (C) 2, and transmits these signals indoors with a transmitter (T) 7.

[0038] Drawing 8 (b) shows the case where a video signal and a sound signal are transmitted separately.

[0039] Drawing 9 has the function which records the received video signal on memory 27, and enables it to reproduce it behind. By DSP (digital signal processor) built in a CCD camera without performing such record by the receiving side, a digital signal can be recorded, and it can save as a still picture, and can also transmit behind.

[0040] It can check, after what visitor's was between absences going home by this. If a picture is sent to VTR other than TV, it is also recordable on VTR.

[0041] In addition, when input signal weak a signal and sufficient as a transceiver antenna is not obtained, you may use the method of turning directivity in the direction of both transmitter-receiver using about 2-3 Yagi Antenna.

[0042]

[Effect of the Invention] So that it may have the structure simply attached in an outdoor entrance according to invention given in claims 1 and 2, as explained above A solar battery, a rechargeable battery, a camera, a microphone, a walkie-talkie, or a call button or a sensing sensor Or when both are superficially constituted from one, and a visitor person pushes the aforementioned call button or a sensing sensor operates The image caught with the camera and the voice of a microphone are transmitted on radio automatically, and electric supply of 1

power supply to a camera or a microphone, the electric power supply to the radio machine for transmitting an image and voice on radio, and the electric power supply to a human body sensing sensor etc. can be performed without wiring the power line. Moreover, since the cable which transmits a video signal also becomes unnecessary in building in a walkie-talkie as one, a main part can attach independently, the time and effort of wiring can also be saved, and an amateur also has the effect attached simply.

[0043] When according to invention according to claim 3 put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, and the indoor receiver received, the aforementioned sensing sensor operates, or a power supply is turned on with a call button and an input signal is detected with the aforementioned receiver, it can know that it was indoors and there was a caller by sounding a chime and telling about.

[0044] According to invention according to claim 4, by doubling the electric wave which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and other electric waves sent from an antenna terminal, and transmitting to TV receiver, a picture can be received with common home TV receiver, and the receiving set of exclusive use is not needed.

[0045] According to invention according to claim 5, a video-signal signal can be taken out from the signal which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and from the video signal terminal of TV receiver, an image is taken in, a picture can be received, and an outdoor situation can be recorded using a videocassette recorder etc. if needed.

[0046] When according to invention according to claim 6 an indoor receiver receives the image of the aforementioned camera and an input signal is detected with this receiver, TV receiver is turned on automatically and it becomes possible by enabling it to project an image to get to know that there was a caller with an image.

[0047] According to invention according to claim 7, it becomes possible to record on videotape the receiving image which received the image of the aforementioned camera with the indoor receiver, and received with this receiver, to have gone back in the past by enabling it to project a videotape-recording image behind, and to get to know a caller.

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[Translation done.]

**\* NOTICES \***

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**TECHNICAL FIELD**

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[The technical field to which invention belongs] this invention makes it possible to wire by the solar battery and the rechargeable battery power supply, and relates to the surveillance camera transmission equipment which transmits the caught image with CCD or a CMOS small camera on radio.

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[Translation done.]

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] It is a solar battery so that it may have the structure simply attached in an outdoor entrance according to invention given in claims 1 and 2, as explained above. When a rechargeable battery, a camera, a microphone, a walkie-talkie, and either a call button or a sensing sensor and both are superficially constituted from one, and a visitor person pushes the aforementioned call button or a sensing sensor operates. The image caught with the camera and the voice of a microphone are transmitted on radio automatically, and electric supply of the power supply to a camera or a microphone, the electric power supply to the radio machine for transmitting an image and voice on radio, and the electric power supply to a human body sensing sensor etc. can be performed without wiring the power line. Moreover, since the cable which transmits a video signal also becomes unnecessary in building in a walkie-talkie as one, a main part can attach independently, the time and effort of wiring can also be saved, and an amateur also has the effect attached simply.

[0043] When according to invention according to claim 3 put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, and the indoor receiver received, the aforementioned sensing sensor operates, or a power supply is turned on with a call button and an input signal is detected with the aforementioned receiver, it can know that it was indoors and there was a caller by sounding a chime and telling about.

[0044] According to invention according to claim 4, by doubling the electric wave which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and other electric waves sent from an antenna terminal, and transmitting to TV receiver, a picture can be received with common home TV receiver, and the receiving set of exclusive use is not needed.

[0045] According to invention according to claim 5, a video-signal signal can be taken out from the signal which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and from the video signal terminal of TV receiver, an image is taken in, a picture can be received, and an outdoor situation can be recorded using a videocassette recorder etc. if needed.

[0046] When according to invention according to claim 6 an indoor receiver receives the image of the aforementioned camera and an input signal is detected with this receiver, TV receiver is turned on automatically and it becomes possible by enabling it to project an image to get to know that there was a caller with an image

[0047] According to invention according to claim 7, it becomes possible to record on videotape the receiving image which received the image of the aforementioned camera with the indoor receiver, and received with this receiver, to have gone back in the past by enabling it to project a videotape-recording image behind, and to get to know a caller.

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[Translation done.]

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**TECHNICAL PROBLEM**

[Problem(s) to be Solved by the Invention] In order to also attach an amateur simply in this invention in order to solve the above problems, and to make a hole in a house, to make it crawl on a line or not to stop by the staple etc., it aims at offering the surveillance camera transmission equipment which transmits on radio the image caught with the camera using the power supply which combined the solar battery and the rechargeable battery.

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[Translation done.]

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## MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention according to claim 1 So that it may have the structure simply attached in an outdoor entrance A solar battery, When a rechargeable battery, a camera, a walkie-talkie, and either a call button or a sensing sensor and both are superficially constituted from one, and a visitor person pushes the aforementioned call button or the aforementioned sensing sensor operates It is characterized by transmitting automatically the image caught with the aforementioned camera on radio.

[0005] In invention according to claim 2, when it has a microphone in addition to a claim 1, and a visitor person pushes the aforementioned call button or the aforementioned sensing sensor operates, it is characterized by transmitting the image of the aforementioned camera, and the voice of the aforementioned microphone on radio automatically.

[0006] Invention according to claim 3 is characterized by what a chime is sounded and is told, when put the image of the aforementioned camera on the RF subcarrier, transmitted on radio, and the indoor receiver received, the aforementioned sensing sensor operates, or a power supply is turned on with a call button and an input signal is detected with the aforementioned receiver.

[0007] Invention according to claim 4 is characterized by the ability to receive a picture with common home TV receiver by doubling the electric wave which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and other electric waves sent from an antenna terminal, and transmitting to TV receiver.

[0008] Invention according to claim 5 takes out a video-signal signal from the signal which received the image of the aforementioned camera with the indoor receiver, and was received with this receiver, and is characterized by taking in an image and being able to receive a picture from the video signal terminal of TV receiver.

[0009] When an indoor receiver receives the image of the aforementioned camera and an input signal is detected with this receiver, invention according to claim 6 turns on TV receiver automatically, and is characterized by enabling it to project an image.

[0010] Invention according to claim 7 records on videotape the receiving image which received the image of the aforementioned camera with the indoor receiver, and received with this receiver, and is characterized by enabling it to project a videotape-recording image behind.

[0011]

[Embodiments of the Invention] Next, the example of the gestalt of operation of the surveillance camera transmission equipment concerning this invention is explained, referring to a drawing.

[0012] Drawing 1 is the schematic diagram showing the transmitter of the surveillance camera transmission equipment in the gestalt of this operation, drawing 1 (a) shows the appearance of a transmitter and drawing 1 (b) shows the interior of a transmitter.

[0013] Inspection hole 2a which the lens of a camera 2 peeps into to the transmitter 1 of drawing 1 is prepared A solar battery 3 is arranged at the external surface of a transmitter 1, power generation by sunlight is performed by this solar battery 3, and this current charges at the rechargeable batteries 8 and 8a by the lithium ion battery, the proton polymer battery, etc. through the electric double layer capacitor 9 and the power control circuit 10 which are shown in drawing 1 (b). Therefore, most main parts are occupied by the power unit. Although it is not necessary to use two pieces as shown in drawing when one is enough as the voltage of rechargeable batteries 8 and 8a, current, and power capacity, when insufficient now, you have to increase further.

[0014] Generally, since voltage required for a CCD camera is 100mA - about 150mA, 6V-12V, and current can fully perform power generation and charge by sunlight. The CMOS camera is better, if a CMOS camera serves a low price and high performance, since it can operate by low current value more when using a CMOS camera instead of a CCD camera.

[0015] The image which received a picture with the CCD camera or the CMOS camera is sent by NTSC or the PAL system from the transmitting section 7 (frequency of 13ch - 27ch, 1.2-1.3GHz of broadcasting satellite tuners etc., etc.) of UHF, and it transmits through an antenna 5. Since it is easily receivable with it being the frequency band which is the receiving range of the conventional TV receiver (TV is called henceforth), it is

desirable to make it operate with the minute power acting as [ especially others ] an obstacle using the frequency used as disturbance of this range.

[0016] In addition, you may use frequency of BlueTooth known as radio specification of power saving, and wireless LAN, such as 2.4 etc.GHz. When using for business use, the frequency of exclusive use can also be used, and you may transmit an image digital signal.

[0017] The electric power supply to the radio machine for being installed in the bright place where the day of a space outside the front door or the outdoors hits in many cases, supplying electric power in the power supply to a camera or a microphone without constituting an efficient power supply and wiring the power line by using a solar battery 3, a rechargeable battery 8, the electric-double-layer-capacitor capacitor 9, or a proton polymer battery, and transmitting an image and voice on radio, and the electric power supply to a human body sensing sensor etc. can also perform a transmitter 1.

[0018] In addition, the monitor section 4 is formed in a transmitter 1 if needed, the image copied with the camera 2 may be displayed, and a receiving set is formed, and you may make it project an indoor image. 6 expresses the stop screw.

[0019] Drawing 2 is called to a transmitter 1, forms a button 20, and a switch is turned on and it enables it to transmit an image by pushing this button 20. Moreover, you may enable it to sound a chime simultaneously at this time.

[0020] When giving the function of an interphone, sound is transmitted through a slit 22 and voice is received by the microphone. In telling the voice from indoor, a receiving set and a loudspeaker are needed also for a transmitter 1 side.

[0021] In addition, it is also possible to install in the sense from which the panel (cell) portion of the solar battery 3 with which the transmitter 1 shown in drawing 1 and drawing 2 is equipped is suitably separated from part for an one transmitter soma, without constituting in one, and the solar quantity of light is obtained more depending on the case.

[0022] In order that drawing 3 may receive the video signal emitted from the antenna 5 of the transmitter 1 attached in the outdoors shown in drawing 1 or drawing 2, it shows the receiver 11 set by TV top or its side, and is received by the antenna 15. The received video signal remains as it is, or is amplified through the high-frequency amplifier (amplifier), and is sent and televised by the usual TV.

[0023] When a signal goes into the indoor receiver 11, the chime 18 attached in the receiver 11 may be sounded and the chime attached in the outdoors may be sounded. An outdoor image is receivable with the usual TV by choosing the channel which switched on TV and was beforehand decided by remote control in the place where the chime was able to be heard.

[0024]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the schematic diagram showing the composition of the transmitter of the surveillance camera transmission equipment in the gestalt of operation of this invention.

[Drawing 2] It is the schematic diagram showing the composition which called to the transmitter of the surveillance camera transmission equipment in drawing 1 , attached the button, and gave the interphone function.

[Drawing 3] It is the schematic diagram showing the composition of the receiver of the surveillance camera transmission equipment in the gestalt of operation of this invention.

[Drawing 4] It is the schematic diagram showing the internal configuration of the receiver of the surveillance camera transmission equipment in drawing 3 .

[Drawing 5] It is the schematic diagram showing the example of circuitry of the transmitter of the surveillance camera transmission equipment in the gestalt of operation of this invention.

[Drawing 6] It is the schematic diagram showing the example of circuitry of the receiver of the surveillance camera transmission equipment in the gestalt of operation of this invention.

[Drawing 7] drawing 6 — it is the schematic diagram showing the example of circuitry which changes and transmits the video signal of the receiver of the surveillance camera transmission equipment to kick to a video signal

[Drawing 8] drawing 5 — it is the schematic diagram showing the example of circuitry which transmits the voice of the transmitter of the surveillance camera transmission equipment to kick

[Drawing 9] It is the schematic diagram showing the example of circuitry which records the video signal of the receiver of the surveillance camera transmission equipment in drawing 7 on memory.

### [Description of Notations]

- 1 Transmitter
- 2 Camera
- 3 Solar Battery
- 5 Antenna
- 7 Transmitting Section
- 8 Rechargeable Battery
- 9 Electric Double Layer Capacitor
- 10 Power Control Circuit
- 11 Receiver
- 12 Receive Section
- 13 13a Coupler
- 13c Switch
- 14 Electric Power Switch
- 15 Antenna
- 18 Chime
- 19 Power Supply Section
- 23 Antisuckback Diode
- 24 Infrared Sensor (Sensor)
- 25 Wave Detector
- 26 Microphone
- 27 Memory
- 28 Chime

**\*NOTICES \***

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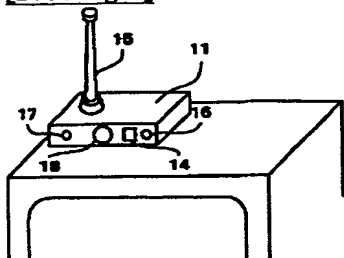
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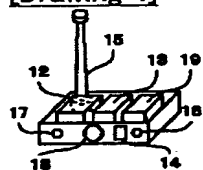
**DRAWINGS**

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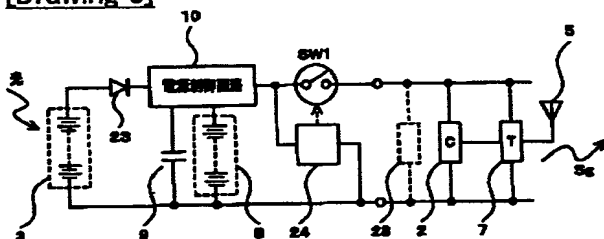
**[Drawing 3]**



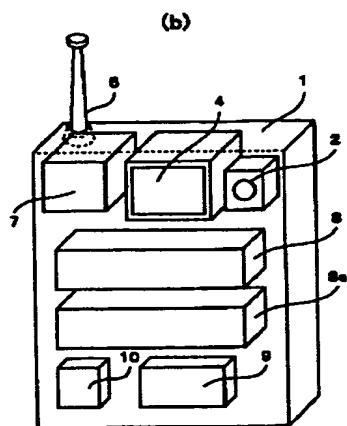
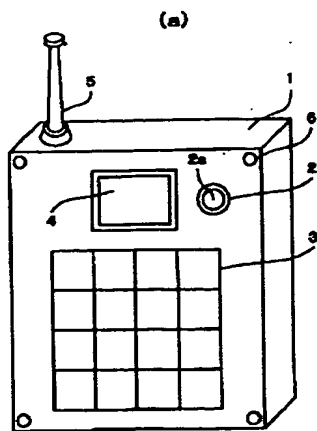
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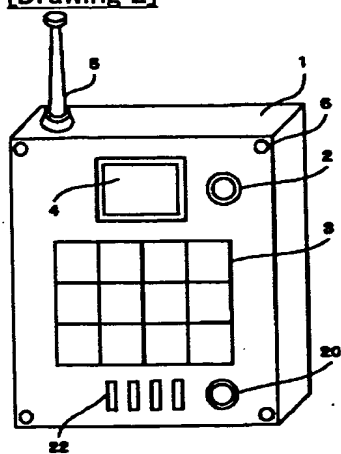
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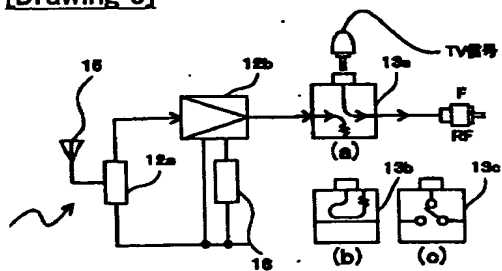
**[Drawing 1]**



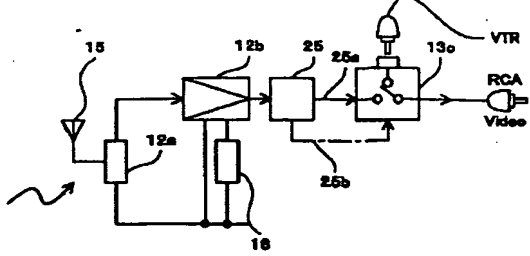
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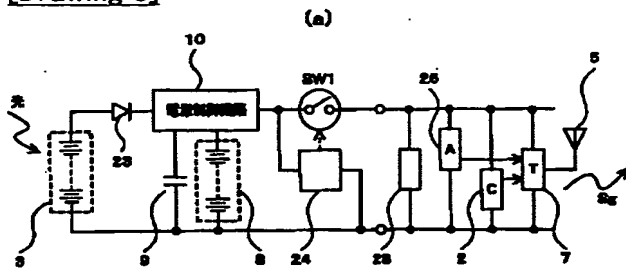
**[Drawing 6]**



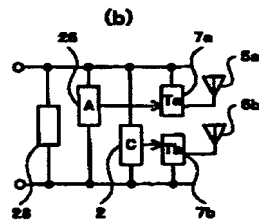
**[Drawing 7]**



[Drawing 8]

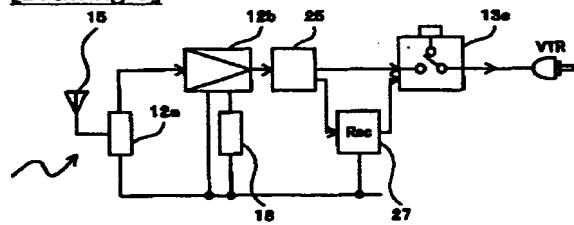


(a)



(b)

[Drawing 9]



[Translation done.]